

# **CIRCULAR SAW**

## **BACKGROUND OF THE INVENTION**

### **1. Field of the Invention**

The present invention relates to a circular saw, and more  
5 particularly to a circular saw that is easily operated.

### **2. Description of Related Art**

A convention circular saw usually includes a base member and  
an operating arm pivotally mounted to the base member. The operating  
arm is reciprocally circularly moved relative to the base member. A  
10 gearbox is defined in a free end of the operating arm. A motor and a  
saw blade are respectively mounted to two opposite sides of the  
gearbox and each has a shaft engaged to each other in the gearbox. On  
the basis of safety, a housing extends from the gearbox for covering the  
saw blade. A handle extending from the gearbox for user to downward  
15 operate the motor with the saw blade for sawing workpiece.

For transmitting a greater torsion to the saw blade, the shafts of  
the motor and the saw blade are designed as short as possible so that  
the width of the gearbox is limited. As a result, the handle should be  
close to the housing. Consequently, the user's back of a hand may be  
20 rubbed against the housing so that the structure of the conventional  
circular saw needs to be advantageously altered.

The present invention has arisen to mitigate and/or obviate the  
disadvantages of the conventional circular saw.

## SUMMARY OF THE INVENTION

The main objective of the present invention is to provide an improved circular saw that includes a handle far away from a blade device for an easy operation.

5        To achieve the objective, the circular saw in accordance with the present invention comprises a base member abutting a supporting surface and an operating arm pivotally mounted to the base member. A gearbox is formed on a free end of the operating arm. The gearbox includes a first cavity and a second cavity respectively laterally defined  
10 in two opposite side of the gearbox. A hole is laterally defined in a bottom of the first cavity and communicates with the second cavity. A handle extends from the gearbox for user to easily operate the circular saw. A motor is laterally securely mounted to the bottom of the first cavity and partially received in the first cavity in the gearbox. A blade  
15 device is laterally mounted to the second side of the gearbox and connected to the motor so that the blade device is driven when the motor is operated.

The width of the gearbox can be widened whatever the lengths of the teathed shaft of the motor and the axle of the blade device are,  
20 because the motor is partially received in the first cavity in the gearbox, that is, the distance between the handle and the housing is elongated.

Further benefits and advantages of the present invention will become apparent after a careful reading of the detailed description with

appropriate reference to the accompanying drawings.

### BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a perspective view of a circular saw in accordance with the present invention;

5            Fig. 2 is a top plan view of the circular saw in Fig. 1;

Fig. 3 is a partially exploded view in cross-section of the circular saw in Fig. 1; and

Fig. 4 is a cross-sectional view of the circular saw in Fig. 1.

### DETAILED DESCRIPTION OF THE INVENTION

10            Referring to the drawings and initially to Figs. 1-4, a circular saw in accordance with the present invention comprises a base member (1) adapted to abut a supporting surface and an operating arm (2) pivotally mounted to the base member (1) so that the operating arm (2) is circularly moved relative to the base member (1). A gearbox (3) is  
15            formed on a free end of the operating arm (2). A motor (4) and a blade device (5) are respectively mounted to two opposite sides of the gearbox (3) and engaged to each other. The blade device (5) has a housing (51) mounted thereon for covering a saw blade (52) of the blade device (5).

20            The gearbox (3) includes a first cavity (31) laterally defined in a first side of the gearbox (3) and a hole (32) laterally defined in a bottom of the first cavity (31). A second cavity (33) is defined in a second side of the gearbox (3) and communicates with the hole (32) in

the bottom of the first cavity (31). The gearbox (3) has a series of apertures (34) defined in an outer periphery of the gearbox (3) and communicating with the first cavity (31) for dissipating the heat from the motor (4) during being operated. A handle (35) extends from the  
5 outer periphery of the gearbox (3) for user to easily operate the circular saw.

The motor (4) is laterally securely mounted to the bottom of the first cavity (31) and partially received in the first cavity (31) in the gearbox (3). The motor (4) includes a teathed shaft (41) extending into  
10 the hole (32) in the bottom of the first cavity (31).

The blade device (5) is laterally mounted to the second side of the gearbox (3). The blade device (5) includes an axle (53) rotatably mounted therein. The axle (53) includes a first end extending into the second cavity (33) in the gearbox (3) and a second end centrally  
15 secured on the saw blade (52) for driving the saw blade (52). A gear (54) is laterally securely mounted to the first end of the axle (53) and engaged to the teathed shaft (41) of the motor (4) so that the saw blade (52) is rotated when the motor (4) is operated.

As described above, the motor (4) is partially received in the  
20 first cavity (31) in the gearbox (3) so that the width of the gearbox (3) can be widened whatever the lengths of the teathed shaft (41) of the motor (4) and the axle (53) of the blade device (5) are, that is, the distance (d) between the handle (35) and the housing (51) is elongated.

Consequently, the handle (35) of the present invention can extend from a situation that is far away from the housing (51) of the blade device (5) to overcome the disadvantage of the conventional circular saw.

Although the invention has been explained in relation to its  
5 preferred embodiment, it is to be understood that many other possible modifications and variations can be made without departing from the spirit and scope of the invention as hereinafter claimed.